

# PATENT COOPERATION TREATY

From the:  
INTERNATIONAL SEARCHING AUTHORITY

To:

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**Mail Rcvd**

13 AUG 2004

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Action .....

## PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

Date of mailing  
(day/month/year)

12 AUG 2004

Applicant's or agent's file reference

12256731/ARS

**FOR FURTHER ACTION**

See paragraph 2 below

International application No.

PCT/AU2004/000784

International filing date (day/month/year)

15 June 2004

Priority date (day/month/year)

16 June 2003

International Patent Classification (IPC) or both national classification and IPC

. Cl. 7 F04D 29/22, 29/24, 7/04

Applicant

WEIR WARMAN LTD et al

1. This opinion contains indications relating to the following items:

- |                                     |              |  |
|-------------------------------------|--------------|--|
| <input checked="" type="checkbox"/> | Box No. I    | Basis of the opinion   |
| <input type="checkbox"/>            | Box No. II   | Priority   |
| <input type="checkbox"/>            | Box No. III  | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability   |
| <input type="checkbox"/>            | Box No. IV   | Lack of unity of invention   |
| <input checked="" type="checkbox"/> | Box No. V    | Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/>            | Box No. VI   | Certain documents cited  |
| <input type="checkbox"/>            | Box No. VII  | Certain defects in the international application   |
| <input type="checkbox"/>            | Box No. VIII | Certain observations on the international application  |

2. **FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the IPEA/AU

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**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

**PCT/AU2004/000784**

**Box No. I      Basis of the opinion**

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This opinion has been established on the basis of a translation from the original language into the following language \_\_\_\_\_, which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).

2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:

a. type of material

- ☐ a sequence listing  
☐ table(s) related to the sequence listing

b. format of material

- ☐ in written format  
☐ in computer readable form

c. time of filing/furnishing

- ☐ contained in the international application as filed.  
☐ filed together with the international application in computer readable form.  
☐ furnished subsequently to this Authority for the purposes of search.

3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.

4. Additional comments:

**WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY**

International application No.

**PCT/AU2004/000784**

**Box No. V**      **Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

**1. Statement**

Novelty (N)	Claims 2-16	YES
	Claims 1	NO
Inventive step (IS)	Claims 12-16	YES
	Claims 1-11	NO
Industrial applicability (IA)	Claims 1-16	YES
	Claims	NO

**2. Citations and explanations:**

D1) US 5165858  
D2) US 5489187  
D3) SU 1064047  
D4) EP 567123  
D5) US 4664592  
D6) US 4883403

**NOVELTY**

Each of the citations D1, D2 & D3 disclose an impeller for a centrifugal pump in which the dimension Da from the rotation axis to the outer peripheral edge portion of the shroud is greater than the dimension Db from the rotation axis to the outer edge portion of the auxiliary vanes. For example in D1 the outer edge of the shroud of the impeller 40 is at a greater radii than the outer edge portion of the auxiliary vanes 130. Similarly in D2 shown in fig 1 the outer edge of the shroud 36 of the impeller 30 is at a greater radii than the outer edge portion of the auxiliary vanes 80. In D3 see additional vanes 12.

The invention defined in claim 1 would also appear to be not novel over the admitted prior art on page 3, lines 9-12 of your specification. You have clearly stated herein that water pumps are known in which the auxiliary vanes have a smaller diameter then the shroud. I can find nothing in claim 1 to distinguish it from this admitted prior art.

**INVENTIVE STEP**

Claim 1: As above

Claims 2-4, 6-8:

Citations D4 & D5 clearly show impellers in which the dimension Da from the rotation axis to the outer peripheral edge portion of the shroud is greater than the dimension Dc from the rotation axis to the outer edge portion of the pumping vanes. See fig 1 in D4 and fig 4 in D5. It would be obvious to a skilled addressee to combine the disclosures of either one of these documents with that of either one of D1- D3 and thereby arrive at the claimed invention. Claims 2-4, 6-8 therefore lack an inventive step.

(continued on supplemental sheet)

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International Application No.

**PCT/AU2004/000784**

**Supplemental Box**

**In case the space in any of the preceding boxes is not sufficient.**

Continuation of: V. 2

Claims 5, 9-11:

Providing auxiliary vanes on both the shrouds is considered common general knowledge in the art, e.g. see citations D5 & D6. It would be obvious to a skilled addressee to combine this knowledge with the teachings of any one of D1-D3 in combination with the teachings of any one of D4-D5 and thereby arrive at the claimed invention. These claims therefore lack an inventive step.